

Remarks/Arguments

Claims 1-7, and 10-12 are pending in the application. Favorable reconsideration of the application is respectfully requested.

I. REJECTIONS OF CLAIMS 1-7, AND 10-12 UNDER 35 U.S.C. §§ 102 AND 103

Claims 1, 2, 6, 7, 10, and 11-7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,334,928 (“Dobkin”). Claim 12 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,025,203 (“Edwards”) in view of U.S. Patent No. 4,757,542 (“Neahr”). Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Dobkin in view of U.S. Patent No. 3,604,885 (“Inoue”). Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dobkin in view of U.S. Patent No. 4,887,021 (“Walker”). All pending claims are believed to be allowable for at least the following reasons. Withdrawal of the rejection is respectfully requested.

Independent claims 1 and 10-12 are generally directed to an overvoltage protection circuitry. Specifically, the invention defined in independent claim 1 requires that “the switch control circuitry comprises a three terminal buckling DC voltage regulator ... for providing a control signal to the switch circuitry,” and that “an output of the voltage regulator is coupled to the supply voltage node such that a change in the supply voltage varies an output current from the voltage regulator, and thereby varies an input current to the voltage regulator from which the control signal is generated.” All other rejected independent claims, i.e., claims 10-12 contain recitations similar to those of claim 1 regarding the above-identified voltage regulator.

The Dobkin Patent

As fully discussed in the previous remarks/arguments, one goal of the present invention is in providing an overvoltage protection circuit for interposing between an input voltage and a supply voltage. According to the present invention defined in claims 1, and 10-12, a change in the supply voltage (e.g., VCC in Fig. 1) varies an output current from the voltage regulator (e.g., an output current from VOUT of U1 in Fig. 1), and thereby varies an input current to the voltage regulator (e.g., an input current to VIN of U1 in Fig. 1) from which the control signal (e.g., a signal to the gate of Q1) is generated. In short, the present invention utilizes switch control circuitry including a three terminal buckling DC voltage regulator configured as a voltage controlled current source as claimed.

By contrast, the newly cited reference, i.e., the Dobkin patent fails to teach or suggest the claimed current source feature, i.e., “an output of the voltage regulator [which] is coupled to the supply voltage node such that a change in the supply voltage varies an output current from the voltage

regulator, and thereby varies an input current to the voltage regulator from which the control signal is generated,” and a “three terminal bucking DC voltage regulator configured as a voltage controlled current source.”

As a preliminary matter, the Office Action has not identified any specific portion of the Dobkin patent which allegedly describes the claimed current source feature, i.e., “wherein an output of the voltage regulator is coupled to the supply voltage node such that a change in the supply voltage varies an output current from the voltage regulator, and thereby varies an input current to the voltage regulator from which the control signal is generated.” See, page 2, line 22 - page 3, line 2 of the Office Action dated October 20, 2003. If the Examiner still believes that the claimed current source feature is somehow suggested in the art of record, Applicants respectfully encourage the Examiner to identify a specific portion of a reference.

The Dobkin patent shows the control circuit 110 in Fig. 1. The feedback terminal FB of the control circuit 110 is connected to the voltage output node 104. The control circuit 110 includes the error amplifier circuit 200 having an inverting input connected to the feedback terminal FB. Most importantly, this error amplifier circuit 200 “compares the voltage of terminal FB with a fixed voltage generated by the reference circuit.” See, Dobkin, column 4, lines 14-32. The control circuit of Dobkin uses a voltage-based comparator, not a current source as claimed. In this sense, the Dobkin patent is the same as the voltage regulator using an error amplifier and a voltage comparator shown in the D’Angelo patent, which was previously cited in the Office Action, but is not relied on now.

In addition, the Dobkin patent does not show the claimed bucking regulator. It is noted that the claim language specifically recites a “three terminal bucking DC voltage regulator configured as a voltage controlled current source.” However, again, the Office Action does not specify a relevant portion of the Dobkin patent which suggests a “three terminal bucking DC voltage regulator configured as a voltage controlled current source.” Therefore, Applicants respectfully request the Examiner to cite a specific portion of the Dobkin patent as allegedly describing the claimed bucking regulator as a voltage controlled current source.

The Office Action asserts based on the description of column 6, lines 3-35 of Dobkin that the circuit 110 corresponds to the claimed bucking regulator configured as a voltage controlled current source. Applicants respectfully disagree. As appreciated by those skilled in the art, in a bucking regulator, the average input current is substantially the same as the output current. By contrast, in the circuit 110 shown in Fig. 2 of Dobkin, the input current at the terminal FB is small enough to be almost negligible, and the output current at the terminal “DRIVE” is sufficiently large because the output current is amplified by the current driver circuit 220. See, Dobkin, column 4, lines 14-32.

For at least the above reasons, it is respectfully submitted that the Dobkin patent cannot be said to teach or suggest the current source features recited in independent claims 1 and 10-12, i.e., “an

output of the voltage regulator [which] is coupled to the supply voltage node such that a change in the supply voltage varies an output current from the voltage regulator, and thereby varies an input current to the voltage regulator from which the control signal is generated,” and a “three terminal bucking DC voltage regulator configured as a voltage controlled current source.”

The Edwards Patent

The Edwards patent was cited as describing the current source features recited in independent claims 1 and 10-12, i.e., “an output of the voltage regulator [which] is coupled to the supply voltage node such that a change in the supply voltage varies an output current from the voltage regulator, and thereby varies an input current to the voltage regulator from which the control signal is generated,” and a “three terminal bucking DC voltage regulator configured as a voltage controlled current source.”

Similar to the reasons set forth above in connection with the Dobkin patent, the Edwards patent also fails to teach or suggest at least the above-identified two features of the invention. Specifically, the Office Action asserts that the voltage regulator 16 corresponds to the claimed bucking regulator, in which a change in the supply voltage varies an output current ... , and thereby varies an input current However, the voltage regulator 16 uses a differential amplifier 26, and a transistor 30, as the Dobkin regulator does. Therefore, the regulator 16 of Edwards should not be interpreted as a bucking regulator in which a change in the supply voltage varies an output current, and thereby varies an input current as claimed.

Again, the Office Action does not identify a specific portion of the Edwards patent which allegedly describes “an output of the voltage regulator [which] is coupled to the supply voltage node such that a change in the supply voltage varies an output current from the voltage regulator, and thereby varies an input current to the voltage regulator from which the control signal is generated,” and a “three terminal bucking DC voltage regulator configured as a voltage controlled current source.” Therefore, Applicants respectfully request the Examiner to cite a specific portion of the Edwards patent as allegedly describing these features.


Other cited references, namely, Neahr, Inoue, and Walker are not relevant to the claimed current source features. Thus, these references do not cure the deficiencies of Dobkin and Edwards.

In view of the foregoing, the inventions defined in independent claims 1, and 10-12 and their dependent claims are believed to be patentable over the cited art. Withdrawal of the rejections is respectfully requested.

II. CONCLUSION

Applicants believe that all pending claims are in condition for allowance, and respectfully request a Notice of Allowance at an early date. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 510-843-6200, ext. 245.

Respectfully submitted,
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Limited Recognition under 37 CFR § 10.9(b)

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Expires: August 28, 2004



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